

Introductory Remarks
CEC – Cal EPA Climate Change Research Conference

September 15, 2005

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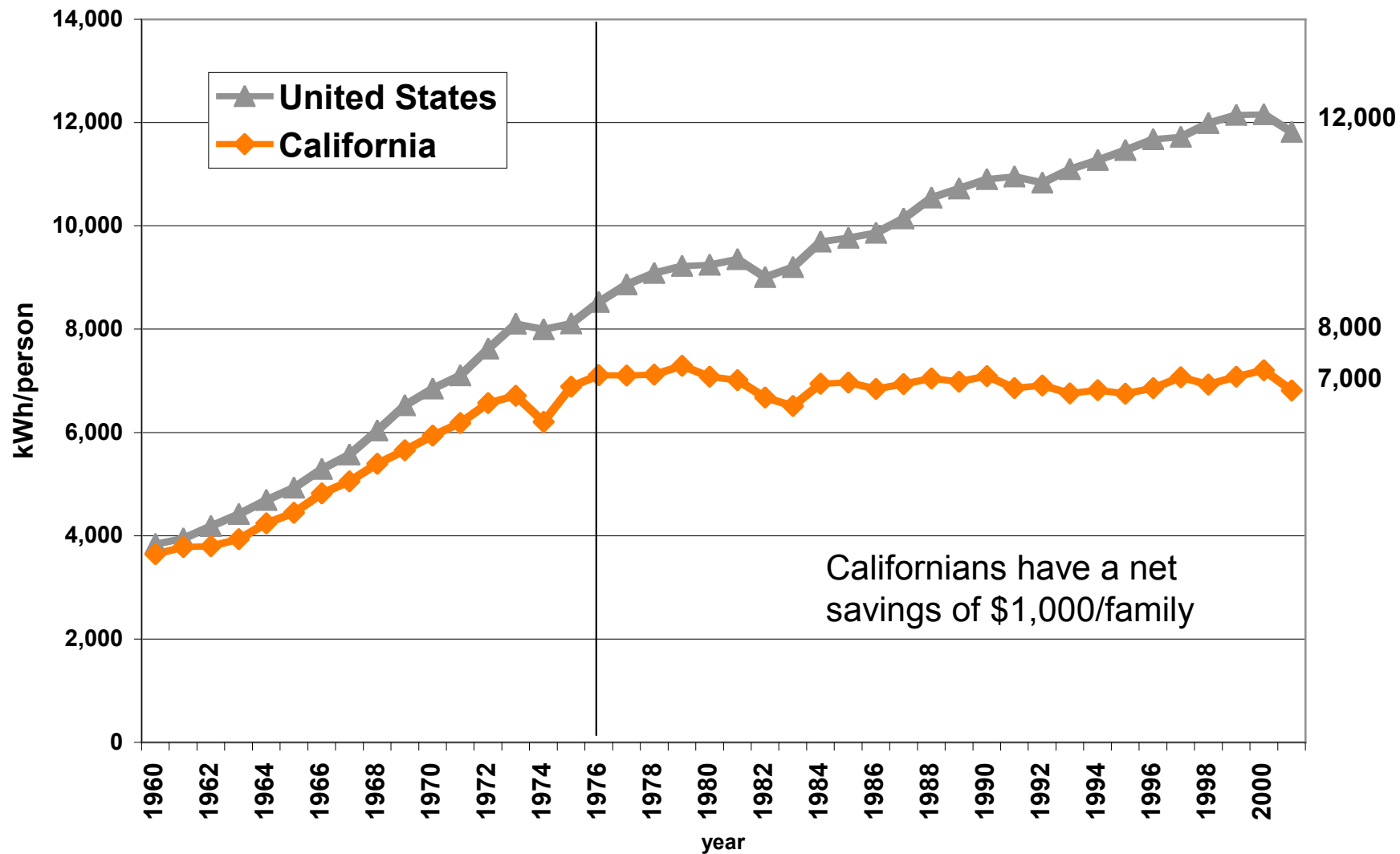
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For my Autobiography, visit

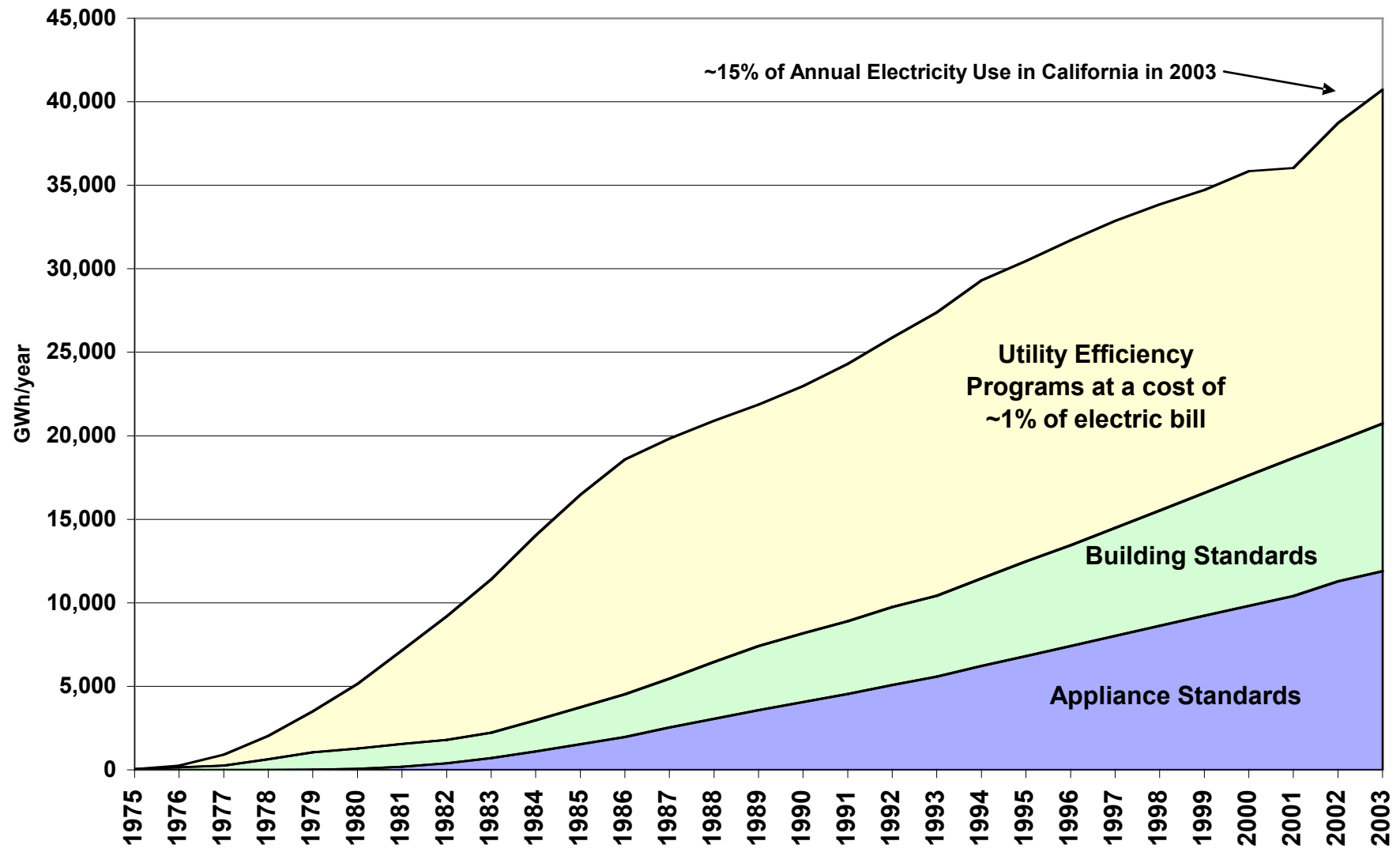
<http://www.energy.ca.gov/commission/commissioners/rosenfeld.html>

Per Capita Electricity Consumption

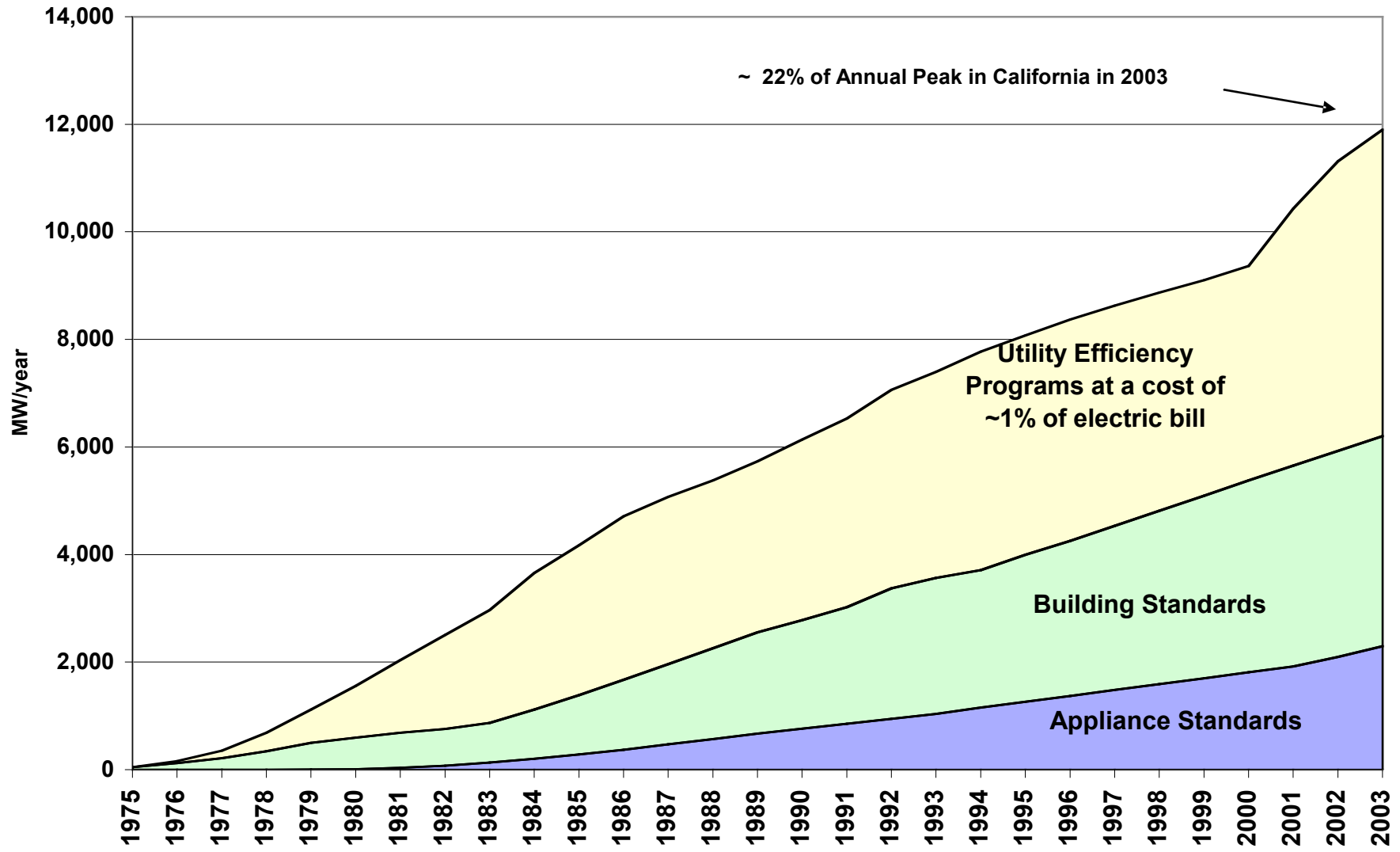
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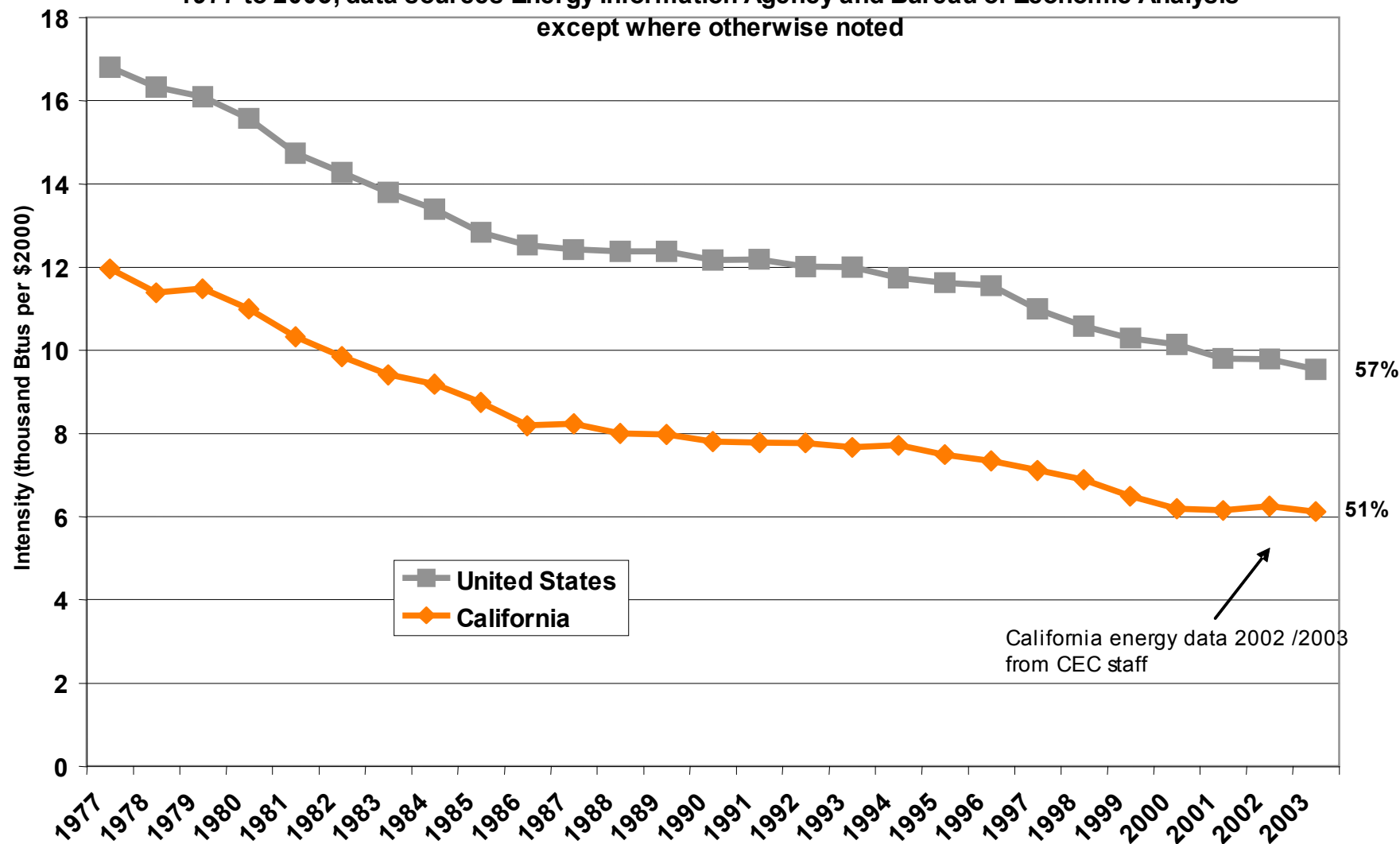
Annual Energy Savings from Efficiency Programs and Standards



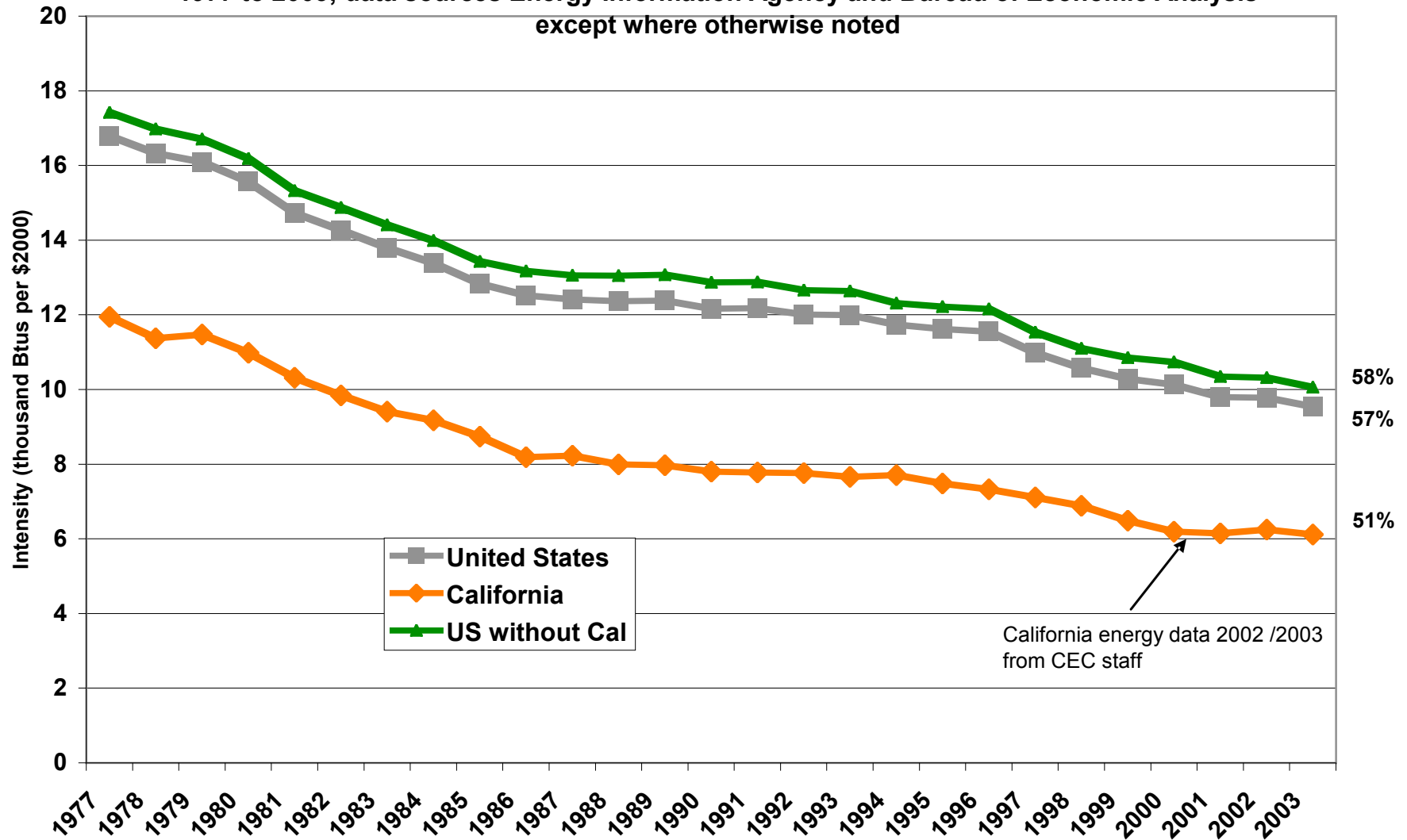
Annual Peak Savings from Efficiency Programs and Standards



Energy Intensity -- California and the United States
1977 to 2003; data sources Energy Information Agency and Bureau of Economic Analysis
 except where otherwise noted

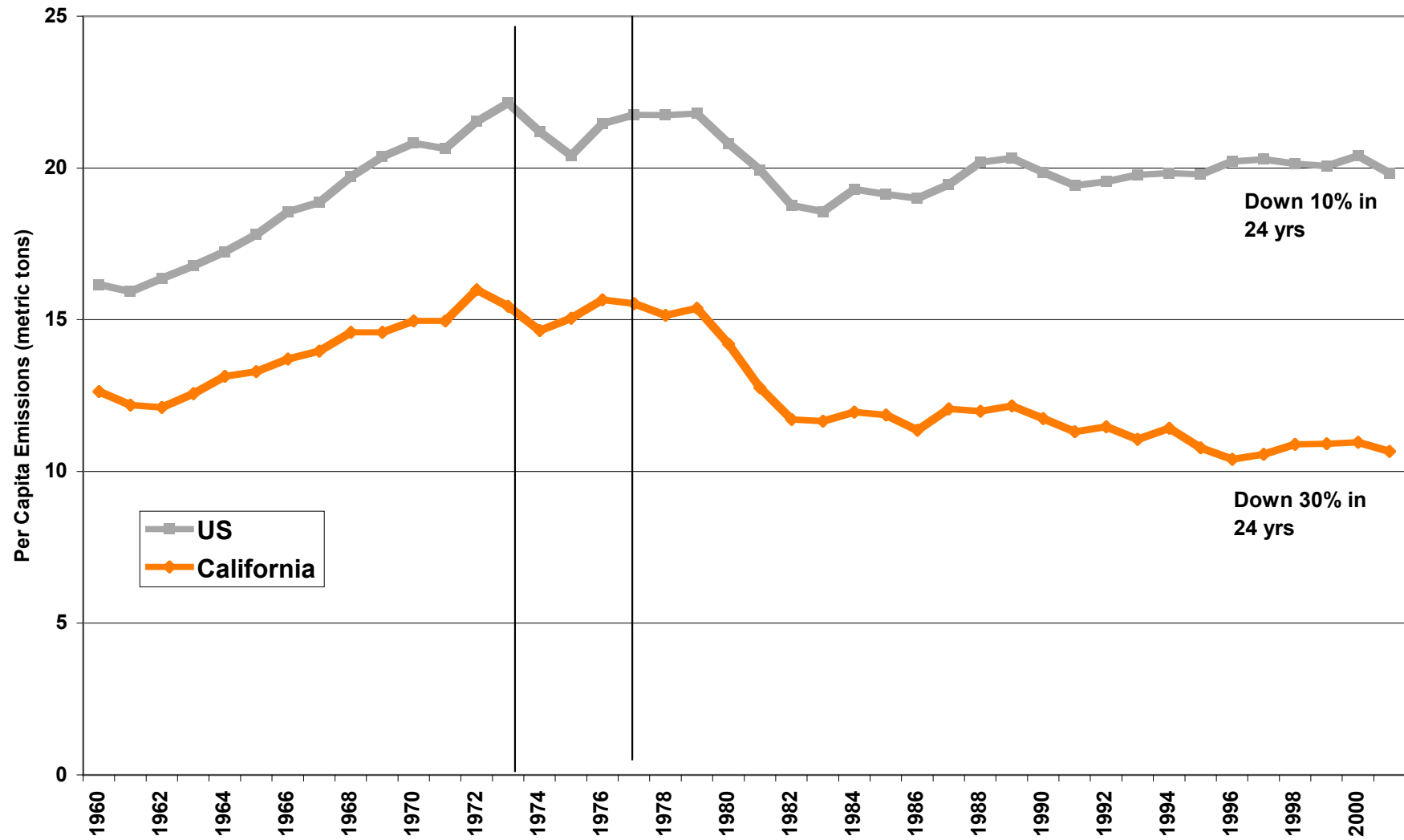


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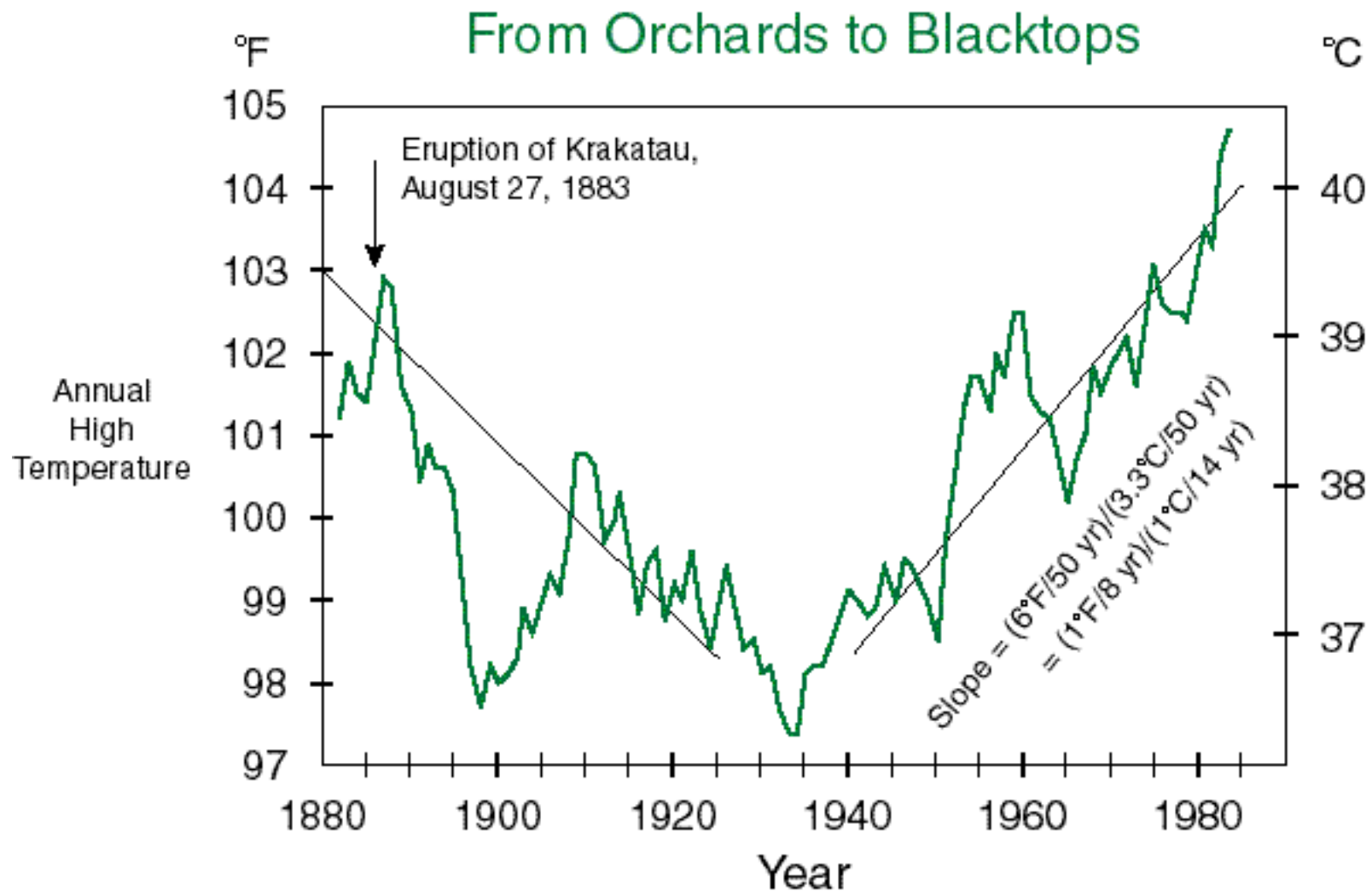


Per Capita CO2 Emissions

California better US by almost 1% per year



Temperature Trends in Downtown Los Angeles

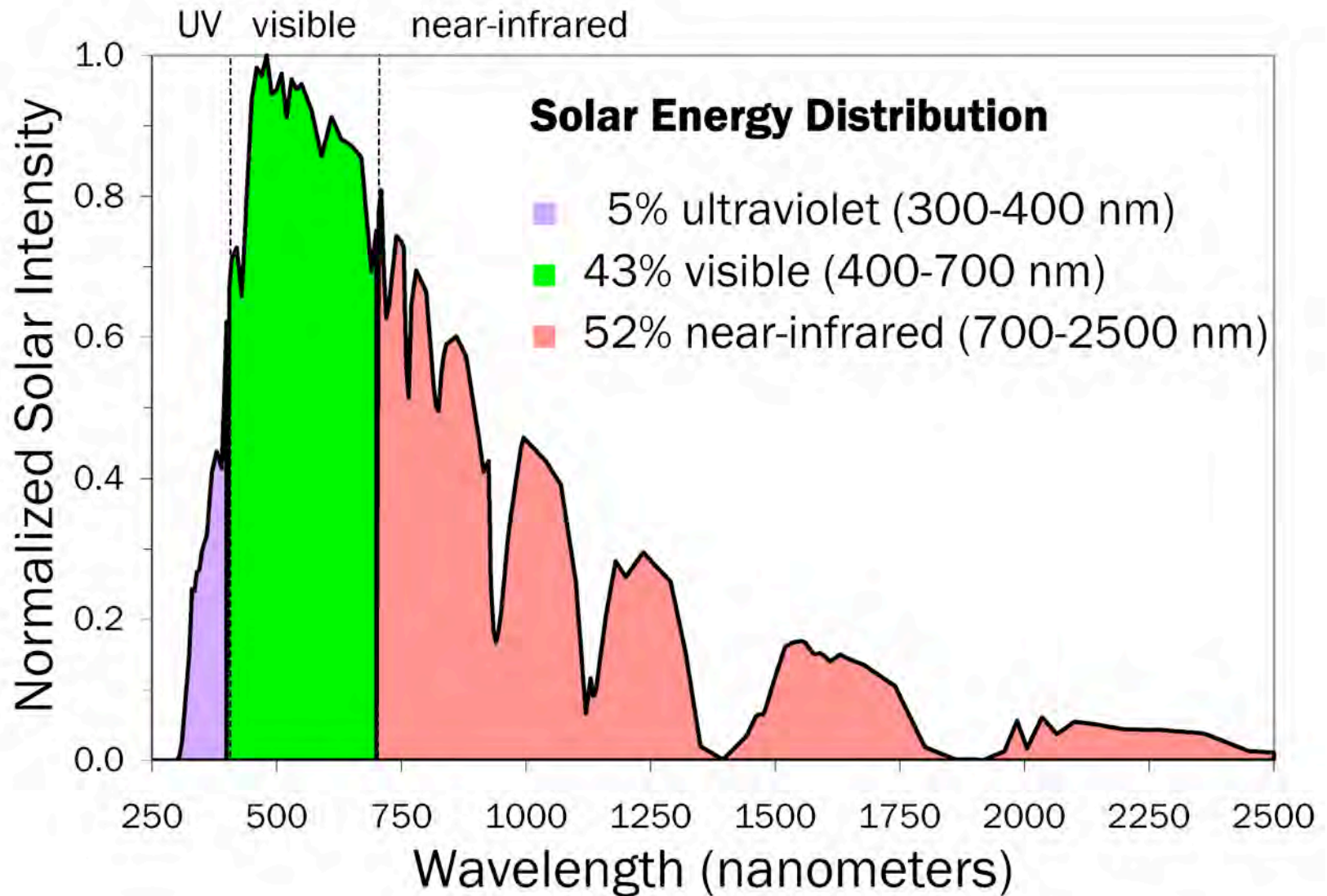


Cool Communities

- ◆ The most lucrative way to:
 - Save air conditioning
 - Cool cities
 - Reduce Urban Ozone
- ◆ Involves 3 strategies:
 - White roofs (5,000 yr old idea) and cool **colored** roofs (a new idea)
 - Cooler pavements (concrete colored to avoid glare)
 - Shade trees (shade buildings and cool by evapo-transpiration)
- ◆ CEC spent \$10 Million for white “re-roofs” and offers credits for cool roofs in meeting new building standards
- ◆ Benefits can be substantial:
 - In LA Basin, 3 strategies can save 1,500 MW and \$ 200 million per year in A/C; Cool LA by 3-4 degrees Celsius; and reduce ozone by 4 – 8 %, worth another \$ 250 million per year in reduced sickness and sick leave

California Cool Roof Policies

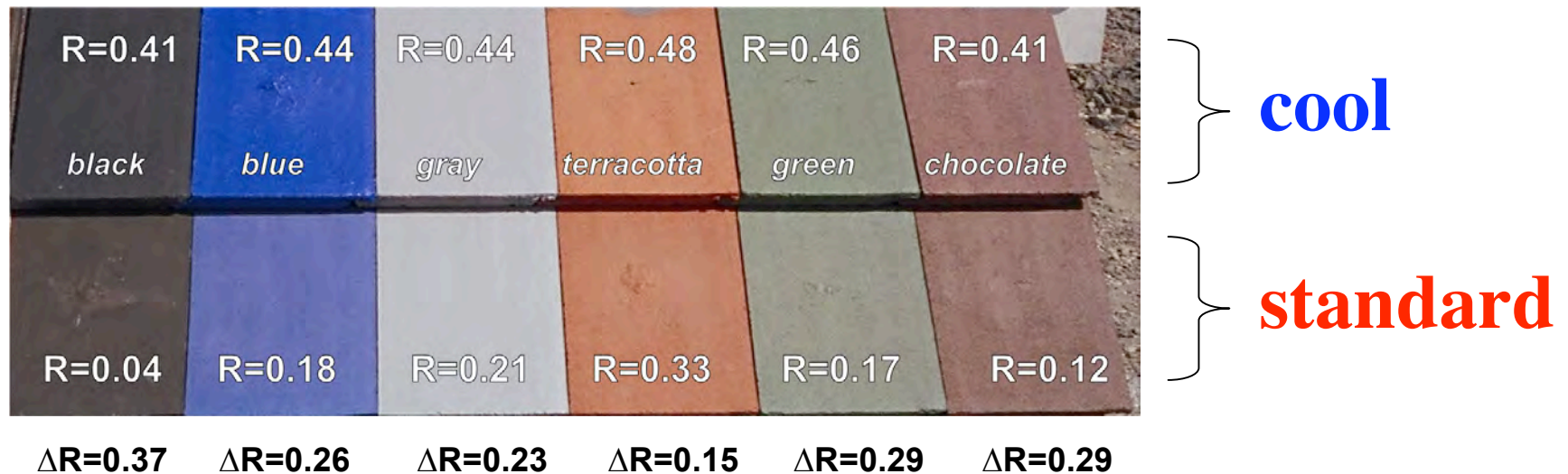
- ◆ Annual Public Goods-funded Utility programs of \$2 to \$3 M/year, offer rebates of ~10 cents/sqft.
- ◆ 2005 Building Standards for flat roofs: White is required.
- ◆ 2008 Building Standards for sloped roofs: Cool required (any color).
- ◆ Most buses have white roofs
- ◆ White cars should be bought for public and private fleets
- ◆ R&D
 - Cool Colored Roofs, including cars (recommended in Pavley Report) to reduce emissions by 30%
 - Service Life of Cooler Roofs
- ◆ Adding Cool communities to State Implementation Plans is frustratingly slow



Source: Hashem Akbari, LBNL

Arthur Rosenfeld, 11

Cool and Standard Color-Matched Coatings for Concrete Tiles



- ◆ Can increase solar reflectance by 0.3 or more
- ◆ Gain greatest for dark colors

Courtesy: American Rooftile Coatings